

Appl. No. 10/692,957  
Amdt. dated Feb. 14, 2006  
In Resp. to Office Action of Nov. 14, 2005

### REMARKS

Claims 1-26 are pending. Claims 20-22, 25 and 25 were withdrawn. Claims 1-19, 23 and 24 stand rejected.

#### Claim 13

The Examiner objected to claim 13 due to a noted informality. Applicant has corrected the typographical error. It is respectfully requested that the objection be withdrawn with respect to claim 13.

#### Claims 10 and 11

Claims 10 and 11 stand rejected under 35 U.S.C. § 112, ¶ 2, as being indefinite. Applicant has amended claims 10 and 11. It is respectfully requested that the rejection under 35 U.S.C. § 112, ¶ 2, be withdrawn with respect to claims 10 and 11.

#### Claims 5-11, 14, 15 and 17-19

Claims 5-11, 14, 15 and 17-19 stand rejected under 35 U.S.C. § 103(a) as being obvious over United States Patent No. 6,337,893 B1 ("Pontius") in view of United States Patent No. 6,703,950 B2 ("Yi"), and further in view of United States Patent No. 6,810,468 B2 ("Miyamoto"). Applicant respectfully traverses the rejection as set forth below.

M.P.E.P. § 2145(X)(D)(2) states that "[i]t is improper to combine references where the references teach away from their combination". M.P.E.P. at page 2100-169 (Rev. 3, Aug. 2005)(case citation omitted).

The teachings of Pontius and Yi teach away from the teachings of Miyamoto. For example, Miyamoto teaches a FIFO circuit with a memory having addresses for  $2^N$  words,  $N$  being an integer. See, e.g., Miyamoto at col. 2, lines 51 and 52; col. 3, lines 55 and 56.

On the other hand, Yi teaches away from using a full-length binary or Gray code sequences as taught by Miyamoto. Using full-length sequences is wasteful. See, e.g., Yi at col. 2, lines 33-42. Yi fills in the need for Gray encoders/decoders "that can encode/decode Gray code sequences that have lengths less than  $2^N$ ." Yi at col. 2, lines 40-42.

Pontius also teaches away from the teachings of Miyamoto. Pontius disparages the  $2^N$  depth FIFO of Miyamoto because such FIFO designs have excess capacity. "The excess capacity can be costly in terms of integrated-circuit area that might otherwise be devoted to other

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functions. The incorporating integrated circuit can be less functional or more costly as a result.”  
Pontius at col. 2, lines 58-61.

Thus, it is respectfully submitted that Miyamoto cannot be properly combined with Pontius and Yi where both Pontius and Yi teach away from Miyamoto.

In addition, as set forth in the next section, Pontius and Yi were improperly combined.

For at least the above reasons, it is respectfully submitted that the rejection based on the combination of Pontius, Yi and Miyamoto cannot be maintained.

It is respectfully requested that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 5-11, 14, 15 and 17-19.

Claims 1-19, 23 and 24

Claims 1-4, 12, 13, 16, 23 and 24 stand rejected under 35 U.S.C. § 103(a) as being obvious over Pontius in view of Yi. Claims 5-11, 14, 15 and 17-19 stand rejected under 35 U.S.C. § 103(a) as being obvious over Pontius in view of Yi, and further in view of Miyamoto. Applicant respectfully traverses the rejections as set forth below.

Claims 1-19, 23 and 24 stand rejected in view of at least Pontius in view of Yi. Applicant respectfully submits that Pontius cannot be properly combined with Yi.

Yi teaches that the removal of an equal number of codes *immediately* above and below the axis of reflection of a Gray code sequence to generate a shorter Gray code sequence. Yi at col. 4, lines 16-19.

On the other hand, Pontius teaches away from merely removing an equal number of codes immediately above and below the axis of reflection as taught by Yi. Instead, Pontius teaches that the reduced Gray code must have (1) bilateral translation symmetry and (2) bilateral reflective symmetry. See, e.g., Pontius at abstract at lines 5-9; and col. 5, lines 55-67.

For demonstration, the Examiner's attention is drawn to the table in col. 5 of Pontius. According to Yi, to make a modulo 12 Gray code, Yi would remove lines 6-9 from the table. However, Pontius at col. 5, lines 55-67, for example, teaches that such a modulo 12 Gray code according to Yi would not have bilateral translation symmetry as required by and defined in Pontius. For example, in Pontius according to Pontius' definition of bilateral translation symmetry, line 1 demonstrates bilateral translation symmetry with line 9; line 2 demonstrates bilateral translation symmetry with line 10; etc. However, using the teaching of Yi in obtaining a

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modulo 12 Gray code, there is no bilateral translation symmetry. As defined in Pontius and in accordance with the teaching of Yi in generating a modulo 12 Gray code, line 0 does not demonstrate bilateral translation symmetry with line 10; line 1 does not demonstrate bilateral translation symmetry with line 11; etc.

According to Pontius, "[b]ecause of the translational symmetry, detectors that work with counters with modulo numbers that are power of two work with corresponding non-power-of-two counter to provide 'full' and 'empty' indications. When read and write counts differ at the two most-significant bit positions but are equal at the remaining bit positions, the detector provides a 'full' indication for a 6-count FIFO". Pontius at abstract, lines 10-16. The simple determination of whether the FIFO is full or empty is a core principle of operation of Pontius. In fact, Pontius disparages prior art that does not provide a simple indication of a full or empty FIFO. See, e.g., Pontius at col. 3, lines 3-8.

Thus, without translational symmetry, the modulo-12 Gray code used for a 6-count FIFO as set forth in Pontius would no longer operate, for example, with a simple indication of a full or empty FIFO. In other words, to modify, for example, FIGS. 1 and 2 of Pontius with the teachings of Yi would change the core principle of operation of the block diagram of FIG. 1 of Pontius and the method as set forth in the flowchart of FIG. 2 of Pontius. M.P.E.P. § 2143.01(VI) states that "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious". M.P.E.P. at page 2100-138 (Rev. 3, Aug. 2005)(*italics and case citation omitted*). Therefore, an obviousness rejection based on Pontius in view of Yi cannot be maintained.

It is therefore respectfully requested that the rejection under 35 U.S.C. § 103(a) be withdrawn with respect to claims 1-19, 23 and 24.

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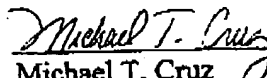
Conclusion

In view of at least the foregoing, it is respectfully submitted that the pending claims 1-19 23 and 24 are in condition for allowance. Should anything remain in order to place the present application in condition for allowance, the Examiner is kindly invited to contact the undersigned at the below-listed telephone number.

The Commissioner is hereby authorized to charge additional fees or credit overpayments to the deposit account of McAndrews, Held & Malloy, Account No. 13-0017.

Dated: February 14, 2006

Respectfully submitted,

  
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